

DOCUMENT RESUME

ED 363 292

IR 016 411

AUTHOR Hunt, Jeffrey L.
TITLE Visual Design in the Planetarium.
PUB DATE 93
NOTE 9p.; In: Art, Science & Visual Literacy: Selected Readings from the Annual Conference of the International Visual Literacy Association (24th, Pittsburgh, PA, September 30-October 4, 1992); see IR 016 399.
PUB TYPE Information Analyses (070) -- Reports - Evaluative/Feasibility (142) -- Speeches/Conference Papers (150)
EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Cues; *Design Requirements; Educational Facilities; Educational Media; Educational Research; Instructional Design; *Instructional Effectiveness; Instructional Materials; *Planetariums; Research Needs; Space Exploration; Teaching Methods; *Visual Aids; Visual Literacy

ABSTRACT

Learning research in visuals and media from education is reviewed, summarized, and extrapolated for the planetarium. Of particular interest is research into the use of cuing, with relevance to the planetarium display. It has been demonstrated that viewers can learn more if they are told about the important concepts and terms before the planetarium show. Researchers from educational fields have shown other ways to increase learning through well-designed visuals. When sophisticated audiovisual technology is used in the planetarium, the planetarian must help the visitor make the technological step. Ten specific research questions are posed for further investigation in the planetarium field, which center on the role of visuals and visual cuing. (Contains 22 references.) (SLD)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

Visual Design in the Planetarium

by
Jeffrey L. Hunt

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Introduction

The planetarium is a visually sophisticated arena. A star projector alone projects thousands of stars on the domed ceiling to simulate the night sky. Supplementary projectors present slides and special effects like meteor showers, rotating galaxies, swarming star clusters, and other dynamic events. Other domed theaters have all-sky film projects, while video projectors show laser disc, video, and special effects. A recent addition to the domed theater is a computer projection system. A high-intensity CRT projects a star map on the ceiling. Besides projecting a starfield, the moon, sun, planets, this new system creates animation of moving stars, orbiting satellites, and the rotating galaxy. Planetarians have attempted to accommodate the handicapped patron (Bouslog & Parker, 1983), but the experience primarily remains an audiovisual experience. As time goes on more sophisticated media are being introduced into the domed theater.

Planetarians, as a group, appear to be visually sophisticated, as many can identify all the objects in a photographic Messier catalog without delay. The Messier catalog is a list of 110 diffuse objects, compiled by Frenchman Charles Messier in the late 18th century, that astronomers should not confuse with comets. Mallas and Kreimer (1978) compiled a photographic atlas of the diffuse

objects. Amateur astronomers target their telescopes on the Messier objects. Go to any telescope star party and at least one or two objects will be trained on an "M" object.

Many planetarians conduct telescope viewing nights at their facilities and at parks and campgrounds. To see the fuzzy Messier objects, an observer must have sharp, averted vision. Planetarians can see those faint, nebulous objects through their telescopes that even the most frequent planetarium visitor cannot discern. Their museum galleries, slide libraries, and office walls are filled with marvelous color photographs of the visual universe beyond. Daily they see hundreds or even thousands of images of celestial objects as they present shows to their patrons and design new ones. Planetarium visitors are not necessarily visually sophisticated. Most probably cannot tell the difference between planets.

When presented with a photograph of Messier 1 (Crab Nebula), many planetarians can identify it by name, describe it as the remnant of the supernova of 1054 A.D., and may be able to identify the location of the pulsar -- a dense, rotating stellar corpse, at its heart. The planetarium visitor would probably identify M1 as little more than a smudge of light. S/he does not have the repertoire of visual experiences of most planetarians. Because of the vast gulf of visual

"PERMISSION TO REPRODUCE THIS MATERIAL
IN OTHER THAN PAPER COPY HAS BEEN
GRANTED BY

Alice D. Walker
TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)"

experiences, planetarians drive visual Ferraris and most of their visitors clunk along in visual Yugos. Planetarians must accommodate this apparent gap in visualization performance.

This writer's comprehension comes from many years of experience working with groups of all ages. Planetarium patrons appear to be visually unsophisticated. When children react in a positive fashion when seeing a beautiful color photograph of Saturn, to what are they reacting? The color of Saturn's clouds? The size of the image? The shape of the planet? The color and texture of the ring system? There is no research to explain their reactions.

This author includes some participation and questions with appropriate wait times, but until recently, this author based his feature presentations and lessons on intuition, experience, and personal preference without much regard for research. Riordan (1991) reviewed the various planetarium research projects ranging from classroom versus planetarium lessons, participatory lessons, and focused research.

The intent of this article is to review learning research of visuals and media from education, summarize it, and extrapolate this foundation into the planetarium. Certainly, extending any research is a dangerous maneuver, but this author will propose research projects that planetarians can perform in their own theaters. He hopes these ideas will facilitate discussions among his peers, additional articles from interested writers, and research projects to test these proposals. With thousands of data points passing through their domes each year, all planetarians can help construct a framework of understanding on the use of effective visuals and media in the planetarium.

Visual Literacy Research

Dwyer (1978, 1987) has devoted many years to researching the

effectiveness of diagrams of the human heart. His study of visual literacy may have direct meaning and application in the planetarium. In his long-running project known as the Program of Systematic Evaluation (PSE), he has evaluated over 35,000 high school and college student subjects with his heart diagrams and a 2,000-word script (Dwyer, 1987). He uses sets of eight types of diagrams to test his hypotheses. They vary in complexity: simple black and white line drawings; simple color line drawings; detailed black and white shaded drawings; detailed color shaded drawings; black and white photos of a heart model; color photos of a heart model; black and white photos of a real heart; and color photos of a real heart.

He developed eight mediated sequences of 37 slides each and one presentation with no graphics based on the same learning objectives. Some of the variables he studied:

1. Method of presentation (television, slide tape, selfpaced).
2. Effect of amounts of detail in images.
3. Color versus black and white.
4. Cueing techniques (arrows, animation).

After the treatment subjects participated in five tests: terminology, identification, drawing, comprehension, and total criterion (Dwyer, 1978).

In testing method of presentation, Dwyer found that programmed instruction (self-paced) dominated as the best with nearly every set of heart diagrams. He concluded that this method was more effective because the subjects had more time to interact with the visuals than in the externally paced (television and slide/tape) treatments. In astronomy education research, McLellan (1987) showed the importance of self-pacing and interactivity with a microcomputer and software called *Sky Travel*. Since the planetarium is not a self-paced environment and hardly interactive—especially for students having complete control as they would with a

computer—planetarians need to look at ways to increase learning to approach self-paced achievement.

Dwyer (1978) demonstrated that time is a factor. In the slide/tape version, the presentation was 40 minutes in length. When the same presentation was delivered on television, for only 17 minutes, the slide/tape version was superior. This is not good news for the planetarian who uses hundreds of slides in a one-hour feature presentation. When visitors are shown too many slides, too fast, they don't remember what they saw. He stated, "[W]hen it is found that visualization used to complement instruction does not improve achievement it may be a worthwhile strategy to increase the amount of time students are permitted to interact with the instructional unit" (p.71). Specifically, show fewer visuals and show them longer.

In the slide/tape mode, Dwyer discovered that simple black and white line drawings were better than realistic photographs. In this externally-paced mode, there may be too much information in a realistic photograph for a learner to look for the desired information. Edit out the unimportant information by offering a line drawing or a simplified photograph. the type of diagram is determined by the type of objective.

In a study performed with realistic photographs, Berry (1991) found that realistic color photographs were more effective than black and white or non-realistic color photos. In his study, he showed his test subjects a slide for 20 seconds. Then the subjects were allowed four minutes to write down everything they saw, and they remembered more when they viewed the color photographs. After a five-minute *rest period*, the process was repeated. Subjects were exposed only to three photographs. This study does not conflict with Dwyer's work, but possibly can be applied to the planetarium exhibit galleries. Single color images at slow pace with ample *rest time* are better than black and white and false color photos.

Cueing Techniques

A cue is a technique to attract attention to important details in a visual. "For a student to learn optimally from a visualized presentation, he must be able to locate, attend to and interact with the relevant instructional stimuli ""(Dwyer, 1978). Various methods of assisting (cueing) the learner to interact with a visual can be employed. He listed nearly thirty techniques, including arrows, lines, labeling, size, animation, encircling, bordering, color, and advance organizers.

Cueing is a common technique in the planetarium; the console pointer is the most common. Planetarians cannot imagine showing starfields, describing the color and position of individual stars without designating their places with their pointers. Another type of cue is telling the planetarium visitor where to look. "If you look to the west, just after sunset, you'll find brilliant Venus." Cueing a learner with other visuals is just as important.

From informal discussions, this author learned that many planetarians do not use cueing as part of their shows. They feel that arrows and labels (words) destroy the mood that the planetarium environment creates and the illusion of infinite size of space. Planetarians would not be without their console pointer to designate (cue) stars, constellations, planets, and deep sky objects. The pointer demonstrates that the night sky created in the domed theater is an audiovisual illusion because it designates the position of the projection screen.

Futhermore, slides and other effects reveal the surface of the dome, show the perforations, and seams on the structure. With the illusion already modified by the use of the pointer and other audio visual effects, why not use cueing with other visuals to assist in learner retention, if cueing is demonstrated to be effective.

Animation (motion) is another cue that Dwyer suggests. Several studies have

been performed by various researchers using a microcomputer. Many planetariums shows are computer-controlled so planetarians should take note of this research. Computer control of a planetarium show and computer-based instruction insure that the message is delivered the same each time.

In a review article, Rieber (1991) looked at the years of research involving animation. His review showed there was little research on animation, and the research that had been accomplished, at the time, showed that "animation is not a powerful influencer on learning." Furthermore he stated, "when learners are novices in a content area, they may not know how to attend to relevant cues or details provided by animation."

Rieber (1989a, 1989b, 1990) made important contributions to the study of animation with computers and Newton's laws of motion. His research showed that animation may be useful for some age groups but not others, and that his subjects learned better when they knew the content they needed to look for in the animated sequence. When his animated sequence was used with elementary students (fourth graders), the animation yielded better learning when students had further practice. He concluded that animated graphics may be significant, but that experiment did not show it. When the sequence was used with a group of college students, animation had no effect. Students benefitted more from the review than the treatment. Perhaps this was academic acculturation of learning that caused students to want a review so they knew "what to study for the test."

Gary Mayton (1991) attempted to put Dwyer's PSE into a computer based instruction module. He created still frames and animation with screen text. Although his work was incomplete, it yielded slightly better learning for animated graphics.

Is animation significant in the planetarium? Is the expense of video

projectors and motion picture projectors justified in learning gains? Research does not, yet, supply the answer.

Dwyer (1978 and 1987) showed that color was an important cue in his simple line drawings and the fewer the color cues, the better. Start (1989) showed that color was significant, but since he tested the colors of an abstract shape it would be unwise to extend his research to learning in a regular classroom or the planetarium. Is color effective as a cueing agent in the planetarium? If so, how should color be used? Research offers no answer.

In significant cueing research (advance organizers) for the planetarium, Walter Bissard (1979) studied four treatments of introducing terminology of *The Last Question* with public program audiences. In his treatment he introduced energy terms used in the show by subjecting visitors at Abrams Planetarium at East Lansing, Michigan, to a slidetape introduction, a written text introduction, a live introduction or a null (no) introduction. He found that subjects learned more about the contents of the show with an introduction than subjects who had none, and that a slide-tape version, when properly designed, appeared best. Furthermore, he showed that different programs should be used for different audience demographics in public shows, especially when different show times can be demographically identified. This cueing medium should be offered to all public program groups for taped programs. The research appears clear on this point.

Is Bissard's work the extent of cueing that is appropriate in the domed theater? Are there other ways to enhance learning? Again, research does not supply an answer.

Audiovisual Research

Like other media research testing the effectiveness of one form against the learning gain from another, the comparative media versus planetarium test

reviewed by Riordon (1987) were inconclusive. This is in agreement with other research summarized by Schramm (1977), in that Schramm reviews that no single medium is better than any other. According to this conclusion, learning in the planetarium will never be consistently better than the same principle demonstrated with a chalkboard or overhead projector. The planetarian should not be disheartened with the effectiveness of the planetarium. Schramm contends that multiple media are necessary to teach concepts. For example, a teacher may be conducting a unit about constellations. At school students read stories, and conduct their own library reports about various constellations. The students attend a lesson at the planetarium about the constellations and their mythology. Students are encouraged to attend a nighttime viewing of the sky held at a park on the weekend. After the planetarium visit, students are asked to create a poster to demonstrate their learning about the constellations. This multiple approach will help the student learn, better than just a single, one-time planetarium experience.

Multiscreen static image is a popular form of image presentation in the planetarium. Several studies Fradkin (1974), Brydon (1974), and Jodoin (1976) provide mixed results, but tend to show that multiscreen is at least as effective as a single screen image. This pattern of presentation in the planetarium needs some study, especially in light of the possible increase in effectiveness of visuals by using cues.

Facility Goals and Objectives

How visuals are used in the planetarium depends on the facility's goals, mission, and objectives. Distinguished correspondents to a discussion question in the "Forum" column of the December 1991 issue of *The Planetarian* seemed to agree that their planetariums serve as a resource of astronomy information—education: where to find selected objects in the night sky,

teacher workshops, astronomy shows, etc. If education is the planetarium's primary mission, shows should reflect this goal.

William Peters of the Alberta Science Centre of Calgary, Alberta, Canada, hoped for more technology: "Install Digistars, Omimaxes, Cinema 360s, fish eye slides, big screen video. go for the big picture." Is a multimedia blitz compatible with an institution that is "gloriously alone in its basic role" -- the topic of discussion—or is it a contradiction? There is no research in the planetarium field to suggest big screen improves instruction. Every planetarian has an opinion based on experience and intuition. Actually, Dwyer's (1978) research showed that an increased size of the heart image did not improve its effectiveness.

To be fair to Mr. Peters, large images are fun, exciting, interesting, and entertaining; perhaps they increase the aesthetic value of the planetarium experience. Large scale projection may increase attendance and revenues, but the visually literate planetarian must put a turbocharger on the visual Yugo to make the technology-driven planetarium show "educational."

For many years an informal topic of discussion centered on the question, "What if you gave a planetarium show and nobody attended?" The question has a corollary: "What if you gave a planetarium show and nobody understood?"

This author (Hunt, 1991) entered the debate of the role of the planetarium from a management perspective. His statements were intended to give perspective of what planetarians do in their domes. Largely, the function of the local planetarium depends on the philosophy of the parent organization. The institutions range from formal education setting to those for entertainment only, but the correspondents from major planetariums across the globe responding to the "Forum" question insisted that their mission is education.

What plays in Chicago and New York will not necessarily fill the dome or fit the philosophy in Peoria. Certainly, there is a blend of entertainment and education in every facility. The mix depends on institutional goals and function. Feature shows need not be clones from facility to facility, but the same basic elements of a show should be similar, especially if they are based on research.

Because of the rate at which images are presented in a domed theater, every beautiful image in the planetarium's library may not be appropriate. Just because planetariums have sophisticated modern audiovisual technology does not mean that it should be used in every instance. Use the technology that fits the learners' needs and cognitive abilities, learning objectives, learning style, and the institutional goals.

Planetarians, as a group, do not give the visual element of the planetarium experience enough consideration and planning. Obviously, they recognize the visualized aspects of astronomy, but, perhaps, they do not plan the visualized messages as they design other elements of a planetarium show.

McColman (1990) reported on his evaluation of "good planetarium shows". In his writing, the soundtrack, musical content, and aesthetic quality were most important. Without them "all of the other elements are little more than a loose jumble of pretty pictures." This statement needs research.

The September 1991 issue of the profession's global publication, *The Planetarian*, had several regular feature sections, including "Mobile News Network, Opening the Dome, Gibbous Gazette, Planetechnica, Forum, Scriptorium, Regional Roundup, President's Message, Kodolith Corner, and Jane's Corner". There is no mention of the production or use of effective visuals in those feature columns or in the major articles.

The consideration of the aforementioned published work is not an indictment of Messrs. Peters or McColman, of John Mosley, *The Planetarian's* editor, or the planetarium community. It is a statement of how planetarians take for granted the visual aspect of the domed theater. Without visual elements planetarians might as well create audio tapes and send them to their patrons.

Proposed Research

A major intent of this article is to invite planetarians and those concerned with visual literacy research to test some of the ideas presented here. Following are ten proposed research questions for planetarians to consider. When using the same instructional objectives:

1) Do planetarium visitors learn more by showing fewer visuals and showing them longer?

2) Under which format do planetarium visitors learn best, simple black and white line drawings, color photographs or false color photos?

3) Are cues such as labels (words), color coding of line drawings, arrows, and lines or visuals without cues significant to learning in the planetarium?

4) Is animation significant for the learning of the planetarium visitor? If animation is significant, does it need cues?

5) Is animation better than a dissolve sequence showing the same dynamic process? If dissolve sequences are more significant, do they need cues?

6) McColman's statement (music, soundtrack, and aesthetics are most important) should be tested. Planetarians can create a show in the regular fashion with music, sound effects, and spoken script. Compare the learning in a *regular* show with one that has music and sound effects in its soundtrack and cued visuals and small amounts of text projected on the dome. Use a regular show without visuals. This writer believes many patrons will reject the second type of *show* on cultural purposes. They expect to hear a voice in the planetarium experience and

not see photographs with words. They may accept the third type, without visuals, but they probably expect visuals with their shows.

7) In an all-sky movie (Omnimax, Cinema 360, etc.) experience, do visitors learn more if visual cues are projected with slide projectors over the movie to distinguish important points in the soundtrack or without cues?

8) Does the image size make a significant difference in learning in the planetarium?

9) Do multiple images in a multiscreen format compared to a single screen affect learning in the planetarium?

10) How do these factors work with visitors of various Piagetian frames of reference?

Summary

Before the planetarium becomes too technological, planetarians should consider the appropriateness of the technology with the goals and mission of the institution. When sophisticated audiovisual technology is used, the planetarian must help the planetarium visitor make the technological step by giving the visual Yugo a boost. Bissard showed that visitors can learn more if they are told about the important terms and concepts in a show by showing a short, well-designed slide-tape presentation before the show. Researchers from educational fields have shown ways to increase learning through well-designed visuals. Further research directed in the planetarium will expand our knowledge of how the planetarium patrons learn.

References

Berry, L. H. (1991). "Interaction of color realism and pictorial recall memory". *Proceedings of selected research presentations at the 1991 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Hargrave, C. Ames, Iowa: Iowa State University, pp. 84-90.

Bissard, W. (1979). "Experimental study of the relative educational effects of four introductory formats to a public planetarium program." *The Planetarian*, 8, 4.

Bouslog, G. & Parker, D. (1983). "Tips on how to handle the handicapped in the planetarium." Great Lakes Planetarium Association

Brydon W.P. (1974). "Comparing single-screen and three-screen presentations." Doctoral Dissertation, University of Southern California.

Dwyer, F. M. (1978). *Strategies for improving visual learning: A handbook for the effective selection, design, and use of visualized materials*. State College, PA: Learning Services.

Dwyer, F.M. (1987). *Enhancing visualized instruction: Recommendations for practitioners*. State College, PA: Learning Services, 1987.

Fradkin, B.M. (1974). "Effectiveness of Multiple-Image Presentations." *Educational technology systems*, 21,3, pp 201-216.

Hunt, J. L. (1991). "Forum." *The Planetarian*, 20, 3, p.40.

Jodoin, J.P. (1976). "A comparison of three-screen and single-screen presentational formats on fact recall and attitude change." Doctoral Dissertation, Boston University.

Mallas, J.H. & Kreimer, E. (1978). *The Messier album*. Cambridge, MA: Sky Publishing Corporation.

Mayton, G. (1991). "Animated Visuals and the Learning of Dynamic Process From Microcomputer-Based Instruction." *Investigating visual literacy: Selected readings for the 22nd annual conference of the*

International Visual Literacy Association, Beauchamp, D., Baca, J., and Braden, R., eds., pp 1-13.

McColman, R. (1990). How good are our planetarium hows? *The Planetarian*, 19:1. pp 9-12.

McLellan, H. (1987). Microcomputers in a high school astronomy class: A case study. Doctoral Dissertation, University of Wisconsin - Madison.

____ (1991a). *The Planetarian*, 20, 3.

____ (1991b). *The Planetarian*, 20, 4.

Rieber, L. P. (1989a). "The effects of computer animated lesson Presentation and cognitive practice activities on young children's learning in physical science." *Proceedings of selected research presentations at the 1989 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Frey, D. Ames, Iowa: Iowa State University, pp 393-406.

Rieber, L.P. (1989b). The effects of computer animated lesson presentation and cognitive practice activities on adult learning in physical science. *Proceedings of selected research presentations at the 1989 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Frey, D. Ames, Iowa: Iowa State University, pp 409-420.

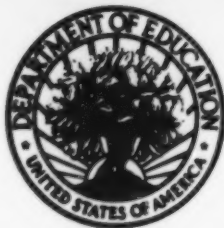
Rieber, L.P.. (1990). Effects of animated visuals on incidental learning and motivation." *Proceedings of selected research presentations at the 1990 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Frey, D. Ames, Iowa: Iowa State University.

Rieber, L.P. (1991). A review of animation research in computer-based instruction. *Proceedings of selected research presentations at the 1991 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Frey, D. Ames, Iowa: Iowa State University, pp 371-389.

Riordan, R. (1991). Planetarium education: A review of the literature." *The Planetarian*, 20:3.18-26

Schramm, W. (1977). *Big media, little media*. Beverly Hills, CA: Sage Publications.

Start, J. (1989). The best colors for audio-visual materials for more effective instruction. *Proceedings of selected research presentations at the 1989 annual convention of the Association for Educational Communications and Technology*, ed. Simonson, M. and Frey, D. Ames, Iowa: Iowa State University, pp 516-527



U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)



REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Art, Science & Visual Literacy: Selected Readings from the 24th Annual Conference	
Author(s): Roberts Braden, Judy Clark Baca, Darrell Beauchamp	
Corporate Source: International Visual Literacy Association, Inc.	Publication Date: January, 1993

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic/optical media, and sold through the ERIC Document Reproduction Service (EDRS) or other ERIC vendors. Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce the identified document, please CHECK ONE of the following options and sign the release below.



Sample sticker to be affixed to document

Sample sticker to be affixed to document



Check here

Permitting
microfiche
(4"x 6" film),
paper copy,
electronic,
and optical media
reproduction

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)"

Level 1

"PERMISSION TO REPRODUCE THIS
MATERIAL IN OTHER THAN PAPER
COPY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)"

Level 2

or here

Permitting
reproduction
in other than
paper copy

n Here, Please

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted but neither box is checked, documents will be processed at Level 1.

11206411

areby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce this document as stated above. Reproduction from the ERIC microfiche or electronic/optical media by persons other than ERIC employees and its contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other agencies to satisfy information needs of educators in response to discrete inquiries."

Signature: Alice D. Walker	Position: Executive Treasurer
Full Name: Alice D. Walker	Organization: International Visual Literacy Association
Address: Educational Technologies Virginia Tech Blacksburg, VA 24061-0232	Telephone Number: (703) 231-8992
	Date: 02/02/93

OVER

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of this document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents which cannot be made available through EDRS).

Publisher/Distributor: International Visual Literacy Association	
Address: Educational Technologies, Virginia Tech Blacksburg, VA 24061-0232	
Price Per Copy: \$25.00	Quantity Price: Negotiable

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name and address of current copyright/reproduction rights holder:
 Name:
 Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:
 ERIC Clearinghouse 030 Huntington Hall Syracuse University Syracuse, NY 13244-2340 U.S.A.